



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application No. : 09/921,324 Confirmation No. 5054
Applicants : Lancy Tsung
Filed : August 2, 2001
TC/A.U. : 2823
Examiner : Fourson III, George R

Docket No. : TI-30243
Customer No. : 23494

BRIEF ON APPEAL

Mail Stop Appeal Brief-Patents
Commissioner for Patents
P. O. Box 1450
Alexandra, VA 22313-1450

Dear Sir:

In support of their appeal of the Final Rejection of claims in this application, and in response to an Office communication dated December 3, 2003, applicants respectfully submit their brief.

REAL PARTY IN INTEREST

The real party in interest is Texas Instruments Incorporated, a Delaware corporation with offices at 7839 Churchill Way, Dallas, Texas 75251.

RELATED APPEALS AND INTERFERENCES

There are no known related appeals or interferences.

STATUS OF CLAIMS

This is an appeal of claims 14, and 16-20, all of the rejected claims. No claim in this application is allowed. Claims 1-12 have been withdrawn. Claims 13 & 15 have been cancelled.

STATUS OF AMENDMENTS

Appellants filed an amendment to claims 14 and 16 after the final rejection. No decision has been made by the Examiner. The claims in the Appendix reflect the changes in the amendment.

SUMMARY OF INVENTION

The application discloses an integrated sample holder for a transmission-electron-microscope (TEM) sample.

The sample holder comprises the following elements:

It has a base made of semiconductor material. The base has a top surface and a flat bottom surface. The bottom surface is sized to engage a TEM double tilt holder.

It has a sample which is integrated to the holder. The sample, which may be a dielectric material, extends upward from the base and it has an upper surface and opposing sidewalls. The sidewalls are parallel to each other and maybe 80 to 200 angstroms apart.

A metallic layer, which may be platinum, sits on the upper surface of holder, covering possibly the entire upper surface.

Because of the process of making the sample holder, there may be a notch at the top surface of the base running parallel to one edge of the base.

ISSUES

- I. Whether claims 14 and 16 are properly rejected under 35 U.S.C. §112, second paragraph.
- II. Whether claim 17 is properly rejected under 35 U.S.C. §112, second paragraph.
- III. Whether claims 18, 19, and 20 are properly rejected under 35 U.S.C. §112, second paragraph.
- IV. Whether claim 17 is properly rejected under 35 U.S.C. 102(e) as being anticipated by Lyons et al.

- V. Whether claims 18, 19, and 20 are properly rejected under 35 U.S.C. 102(e) as being anticipated by Lyons et al.
- VI. Whether claim 16 is properly rejected under 103(a) over Lyons et al and further in view of overlapping width between the recited reference and the disclosure.

GROUPING OF CLAIMS

The claims do not stand or fall together for reasons set forth below under ARGUMENTS.

ARGUMENTS

Issue I. Whether claims 14 and 16 are properly rejected under 35 U.S.C. 112, second paragraph.

Applicants agree with Examiner Fourson that claims 14 and 16 should not depend on claim 13, which has been cancelled. The claims depend on new independent claim 17¹. The rejection is proper.

Issue II. Whether claim 17 is properly rejected under 35 U.S.C. 112, second paragraph.

Applicants respectfully submit that the test for definiteness under 35 U.S.C. §112, second paragraph is whether “those skilled in the art would understand what is claimed when the claim is read in light of the specification.”² If the claims, read in the light of the specifications, reasonably apprise those skilled in the art both of the utilization and scope of the invention, and if the language is as precise as the subject matter permits, the courts can demand no more.³

The Office action states that ‘In claim 17, it is unclear what dimensions are recited through use of “sized to engage a TEM double tilt holder”.’ Not only does the description of “sized to engage a TEM double tilt holder” reasonably apprise those skilled in the art that the size of the bottom surface of the sample holder should be

¹ See, Applicants’ amendment-A, p. 8, l. 7.

² Orthokinetics, Inc. v. Safety Travel Chairs, Inc., 806 F.2d 1565, 1576, 1 USPQ2d 1081, 1088 (Fed. Cir. 1986).

³ Shatterproof Class Corp. v. Libbey-Ovens Ford Co., 758 F.2d 613, 225 USPQ 634 (Fed. Cir. 1985)

dimensioned so it fits the holder of the TEM machine to be used, the specification also provided a typical value. In the preferred embodiment, the dimension is 180 micrometers by 2.95 mm.⁴

Because not all TEM holders are identical in dimension, “sized to engage a TEM double tilt holder” is as precise as the subject matter permits. Therefore, claim 17 is not being indefinite and the rejection is improper.

Issue III. Whether claims 18, 19, and 20 are properly rejected under 35 U.S.C. §112, second paragraph.

The Office action provides no reason, no explanation, and no support for rejecting claims 18, 19, and 20 under 35 U.S.C. §112, second paragraph. Applicants respectfully submit that the rejection is improper.

In addition, the Office action states that “The text of those sections of Title 35 U.S. Code not included in this action can be found in a prior Office action. Applicants respectfully submit that there is no §112 rejection in any prior Office action and there is no §112 text in any prior Office action.

Issue IV. Whether claim 17 is properly rejected under 35 U.S.C. 102(e) as being anticipated by Lyons et al.

Applicants respectfully submit that a claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.⁵

Claim 17 describes an integrated sample holder for a TEM sample. The elements in the TEM sample holder comprise:

- (1) a base of a semiconductor material, having a top surface, a substantially flat bottom surface area sized to engage a TEM double tilt holder,
- (2) a TEM sample, extending upward from the base, having an upper surface and opposing, substantially parallel sidewalls, and

⁴ See, Application, 1st paragraph, p. 8.

⁵ VerVerdegall Bros., Inc, v. Union Oil Co., 814 F.2d 628, 631 (Fed. Cir. 1987).

(3) a metallic layer disposed on the upper surface.

In contrast, the Lyons reference teaches sidewall formation for sidewall patterning of sub 100 nm structures. The Lyons reference does not teach a sample holder for TEM sample. It does not teach a sample holder that has a base of a semiconductor material, having a top surface, a substantially flat bottom surface area sized to engage a TEM double tilt holder. And it does not teach a sample holder that has a TEM sample, extending upward from the base, having an upper surface and opposing, substantially parallel sidewalls.

There is also no evidence and proof that those elements are inherently described in the Lyons reference.

Therefore, the 102(e) rejection against claim 17 is improper and claim 17 stands patentable over the Lyons reference.

Issue V. Whether claims 18, 19, and 20 are properly rejected under 35 U.S.C. 102(e) as being anticipated by Lyons et al.

Applicants respectfully submit that claims 18, 19, and 20 depend on claim 17 with additional limitations not found in the Lyons reference. In particular, claim 18 limits the top surface of the base to have an elongated notch running substantially parallel to an edge of the base; claim 19 further limits the metallic layer to cover substantially the entire upper surface; and claim 20 further limits the TEM sample to include a layer of insulating material.

Because claim 17, on which the claims 18, 19, and 20 depend, is patentable over the cited reference and every dependent claim has limitations not found in the cited reference, the 102(e) rejections against claims 18, 19, and 20 are improper.

Issue VI. Whether claim 16 is properly rejected under 103(a) over Lyons et al and further in view of overlapping width between the recited reference and the disclosure.

Claim 13 depends on claim 17 with additional limitation not found in the cited reference. In claim 13, the TEM sample is limited to have a distance between the sidewalls is between 80 and 200 nanometers. The element TEM sample is not found in the Lyons reference. The Office action fails to establish prima facie obviousness over the

reference. Therefore, claim 13 stands patentable with the correction that it depends on claim 17.

Conclusion

The Office action is correct in rejecting claims 13 and 15 for not correctly stating the depended claim. It fails to establish prima facie case in the other rejections. Claim 17 is improperly rejected under §112, second paragraph because “sized to engage a TEM double tilt holder” is not indefinite, and §102(e) because the cited reference fails to set forth many elements in claim 17; claims 18, 19, and 20 are improperly rejected under §112 paragraph two because the Office action fails to support the rejection with any reason, and §102(e) because the claims depend on patentable claim and have additional limitations not found in the cited reference; and claim 16 is improperly rejected under §103(a) because it depends on patentable claim 17 and has additional limitation not found in the cited reference.

Applicants respectfully request the Board to reverse the final rejection and allow the claims on appeal.

Respectfully submitted,



Yingsheng Tung

Reg. No. 52,305

Attorney for Applicants

Texas Instruments Incorporated
P. O. Box 655474, MS 3999
Dallas, Texas 75265
(972) 917-5355

APPENDIX

The claims on appeal read as follows:

14. The method of Claim 17, wherein the metallic layer includes platinum.
16. The method of Claim 17, wherein the distance between the sidewalls is between 80 and 200 nanometers.
17. An integrated sample holder for a TEM sample, comprising
a base of a semiconductor material, having a top surface, a substantially flat bottom surface area sized to engage a TEM double tilt holder,
a TEM sample, extending upward from the base, having an upper surface and opposing, substantially parallel sidewalls, and
a metallic layer disposed on the upper surface.
18. The integrated sample holder of claim 17, further comprising an elongated notch at the top surface of the base running substantially parallel to an edge of the base.
19. The integrated sample holder of claim 17, in which the metallic layer covers substantially the entire upper surface.
20. The integrated sample holder of claim 17, in which the TEM sample includes a layer of insulating material.